

## CHARACTERIZING SUBSTANCES WITH MULTISTATIC PROBES

### ABSTRACT

5           The disclosed technology can be used in the development and operation of multistatic probes that can characterize substances and relationships between substances. A multistatic probe can include transmitting and receiving conductive elements that are electrically distinct and which are capable of conveying electromagnetic energy to/from a substance of interest. The transmitting and receiving conductive elements can be arranged to be in contact with at least one  
10   dielectric mismatch boundary between substances of interest, whereby an electromagnetic signal transmitted on the transmitting conductive element causes a corresponding electromagnetic signal to be coupled to the receiving conductive element in response to the transmitted signal being in proximity to the dielectric mismatch boundary. Attributes of the received electromagnetic signal can be evaluated relative to the transmitted electromagnetic signal to  
15   determine one or more characteristics associated with at least one of the substances forming the dielectric mismatch boundary.